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THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

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BUREAU OF PLANT INDUSTRY

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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Volume XXIII July 31, 1939 Number 14

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Some reports on diseases of cucurbits, page 231, include a note on the relation between bitter flavor and the prevalence of mosaic in New York, by Charles Chupp; mosaic and bacterial wilt in Monroe County, by Ralph G. Palmer, and bacterial wilt in Nassau County, New York, by Orson S. Cannon; and unusual severity of downy mildew in southern Georgia, by Huey I. Borders.

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Rice straw stacks apparently act as a source of infection with the black kernel disease, according to Alan L. Martin, page 247.

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The Weather Bureau's discussion of drought in the Northeastern States and moisture conditions in other parts of the country, page 250.

An announcement of a Third National Plant Nematode Conference has been prepared by Howard P. Barss, page 251. Readers are asked to note the request for information on nematode diseases.

A persimmon wilt found in Oklahoma appears to be very similar to the destructive disease reported from the Southeastern States, according to K. Starr Chester, page 252.

A NEW POTATO DISEASE IN NEW YORK

Phares Decker

On July 10, while examining potato fields with County Agent C. F. Crowe in Erie County, a new disease of potatoes for the State of New York was found in an early planting of Warba and Cobbler varieties on a farm near Boston, New York. Approximately 15 percent of the Warba plants were affected while only 2 percent of the Cobbler plants showed the symptoms.

The diseased stem stood erect but the leaves were slightly wilted. The young leaflets at the apex were rolled upward. The red pigment in the Warba variety was accentuated in the leaves and on the stems with the more extensive coloration being formed at the side of the leaflets where the curling was more evident.

Apical dominance was lost and axillary shoots developed on the stems, which were swollen at the base, forming distinct aerial tubers.

Browning of the vascular elements of the lower part of the stem and of the stolons was evident. The browning extended several inches above the ground and well into the stolons. Examination of the lower part of the plant revealed no signs of Rhizoctonia.

This description agrees very closely with that of C. R. Orton and L. M. Hill for "blue stem" of West Virginia and also for "purple top wilt" of Minnesota by J. G. Leach[1]. This disease is believed to be a form of western aster yellows transmitted by the aster leafhopper which has been found feeding on many different plants. Fortunately this disease is not tuber-transmitted but is carried over from year to year in various weed hosts.

The importance of this disease cannot be over-estimated as all varieties are susceptible. The reduction in yield depends largely upon the stage of development of the potato plant at the time of infection.

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[1] [Orton and Hill reported (Amer. Potato Jour. 15: 72-77) that in a trip made in August, 1937, through Pennsylvania, New Jersey, New York, Connecticut, Massachusetts, and Vermont, blue stem was observed only in certain regions of Pennsylvania and New York. It is also known to occur in Maryland. In West Virginia it is widely distributed throughout the Appalachian Plateau and has become a limiting factor since it was first observed in 1931.]

Reports from West Virginia state that in 1935 one field showed nearly 100 percent severely infected plants and yielded only 10 bushels of U. S. No. 1 tubers per acre. Similar cases have been reported each year following 1935.

(From New York State College of Agriculture, Department of Entomology and Plant Pathology, Weekly News Letter, July 17).

LATE BLIGHT AND TIPBURN ON POTATOES IN NEW YORK

(From Weekly News Letter for dates indicated)

Late Blight of Potatoes Has Appeared: Mr. William M. Epps on July 14 reported finding late blight [Phytophthora infestans] on early Rurals in a field near Hardys, Wyoming County. The grower noticed it two days earlier. The potatoes were then about 10 inches high and had not yet begun to bloom. The disease was confined to localized lesions on the leaves. (F. M. Blodgett, July 24).

Reports on Tipburn and Hopperburn: In Nassau County (Long Island), considerable tip burning is showing up on Green Mountain, especially on lighter ground. This is probably due to dry weather or aphids or both since leaf-hoppers were not very abundant at the time that the first symptoms were evident. Leaf-hoppers are present now in sufficient numbers to cause hopper burning in its own right even without aphids and continued drouth. (J. O. Nottingham, July 24).

On Long Island leafhoppers are present and tipburning is severe in all fields visited. (W. A. Rawlins, July 24).

Considerable hopper burn is beginning to appear in Monroe County. (R. G. Palmer, July 24).

In Genesee County leafhopper nymphs are increasing in number and some hopper burn is appearing. (J. N. Roney, July 17).

A heavy leafhopper infestation appears likely in the Genesee-Orleans muck area, and early symptoms of hopperburn are evident. (W. A. Rawlins, July 17).

POTATO DISEASES IN MASSACHUSETTS

O. C. Boyd

The principal complaint this year from potato growers generally was over the unusual occurrence of missing hills and irregular or uneven emergence. Seed-piece decay accounted for the condition in a few instances investigated, and purely "blind" seed-pieces in others, notably in Chippewa where eyes are scarce on the tuber. Slowly emerging, spindly sprouts, which later proved to be mostly leafroll plants, accounted for late, weak hills in many fields, particularly where non-certified seed potatoes were planted. However, as usual, Rhizoctonia [solani] sprout rot was the predominating factor responsible for skips and late emergence. It was decidedly worse this year on the heavier soils, particularly where the seed-pieces were covered deeply. The worst cases observed were in the hill towns of Western Massachusetts on land that had been in turf for several years until plowed up last fall, even though not covered deeply at planting time; and in a heavy soil where the crop was covered 4 to 5 inches deep at planting and later covered with about 4 inches additional after emergence. In the latter case, the potatoes were dipped in organic mercury before cutting. On the same farm, there was much less damage in a second field with a noticeably better stand, where the total coverage of the seed-pieces amounted to about 5 inches rather than 8 to 9 inches.

In Bristol County, on the other hand, a survey on June 2 revealed very little sprout rot in most fields, although one planting of Spaulding Rose in Westport was rather badly damaged by it. The seed-pieces showed many Rhizoctonia sclerotia, and the potatoes were not disinfected. In the same field, Green Mountain, with clean tubers, also not treated, showed very little sprout infection and very few missing hills or late, weak plants. Throughout the Connecticut Valley the damage from Rhizoctonia sprout-rot is about normal, and is responsible for many poor, irregular stands.

Only two instances of late blight [Phytophthora infestans] have been observed, on June 29 and 30 in Hawley and Worthington respectively, as isolated primary stalk infections. Secondary infection was not apparent in either instance. The potato mosaic situation is about normal, low to a trace in fields from certified seed, and moderately prevalent in plantings from uncertified seed. Leaf-roll, on the other hand, is easily noticeable in certified stock, and very abundant, up to 80 percent, in fields from noncertified seed potatoes.

It is interesting to note the heavy increase in potato acreage planted to the Chippewa variety and the corresponding reduction in Irish

Cobblers. This change is no doubt prompted by the higher yields and ready sales of the Chippewas during the past few years.

(Massachusetts State College Crop Disease Notes, July 11).

ONION DISEASES IN MASSACHUSETTS

O. C. Boyd

The acreage of seed onions in the Connecticut Valley appears to be even smaller than during the past two seasons. In fact, it is reported to include no more than 100 acres in the entire Valley. Set onions up to the latter part of June looked good, but have rapidly declined in prospects for yield during the past week. It is believed now that the dry weather of May, followed by subnormal precipitation in June, affected the crop to a much greater extent than was generally thought earlier in the season. Harvesting was under way on July 6 in an occasional field that finished off prematurely.

Smut [Urocystis cepulae] caused the usual, heavy loss in stand in seed onions and in seed-sets on old onion land where the formaldehyde treatment was not practiced. Downy mildew [Peronospora destructor] has not been observed or reported. Root-rots and bulb decay, manifested by premature dying of the tops in set onions, are not so prevalent as in some past wetter seasons. Blast [non-parasitic] has not made its appearance in either the seeded fields or the set onions. So far, there have not occurred prolonged cloudy, damp periods followed by bright, hot weather. Even though July should bring, as it usually does, periods of hot, dry weather, the onions have not been subjected to the conditions that make for shallow rooting and succulent, tender tops.

(Massachusetts State College Crop Disease Notes, July 11).

NOTES ON ONION DISEASES IN NEW YORK

A. G. Newhall

Pink Root and Bulb Rot: The continued warm, dry season so far has been conducive to pink root (Phoma terrestris) and to a soft dry rot of bulbs caused by a Fusarium not yet identified. This latter disease has been found even on rather new muck, affecting 1 or 2 percent of the bulbs (Madison and Orange Counties). It does not spread rapidly from one bulb to the next, for badly affected plants, completely killed in fact, may have healthy ones on both sides. The leaves wilt, dry down and turn

pallid, leaving a stiff neck and a rootless bulb filled with a grey-brown mealy pulp. There is some evidence this disease was carried in the sets. Affected onions should be removed from the field and destroyed to protect next year's crop if no rotation is to be practiced. There is little reason to expect sets now being locally grown to harbor much of this rot so next year's crop of onions should be relatively free. It is probably a hang-over resulting from last year's wet summer.

Pink root is apparently causing many fields and parts of fields to go down prematurely, which will result in lots of small sized onions.

Bulb Nematode: Dr. B. G. Chitwood of the U. S. Department of Agriculture entomology laboratory at Babylon, Long Island, and Mr. R. L. Clement of the State Department of Agriculture, spent two days with County Agent Hayes examining fields and experimental plots in the Canastota area. It appears that the bulb nema infestation is not spreading and that its eradication may be expected in another year.

The bulb nematode (Tylenchus dipsaci) [Ditylenchus] has apparently been controlled by chloropicrin at 1 pound per 120 square feet (360 pounds per acre) in the Canastota area, though final data can not be taken before harvest time. Sulfur at a ton per acre applied last September gave somewhat incomplete control.

In affected areas the onions gradually die and disappear during the summer, leaving a spot suggestive of lightning injury except that it becomes larger each year. (July 17).

Onion Mildew on Oswego Muck: The development of the week was the appearance of onion mildew [Peronospora destructor] on July 19 in one 80-acre tract of late onions near Oswego. Mildew has occurred on this farm about as early as anywhere for 3 years but this time the primary infection is showing up near the Northern rather than the Southwestern edge. This shift is believed to be due to the removal last spring of the most offending and nearest planting of top sets to the west. The nearest known garden planting of diseased top sets this season is nearly 2 miles to the north. Onions are far enough along so that severe loss can hardly be expected now.

It is of interest to recall that last year the first mildew was found on garden top sets April 19 and on commercial onions June 19, while this year the dates are 30 days later, being May 19 and July 19. This may be interpreted as further circumstantial evidence of the importance of top sets as the chief sources of primary inoculum and of the wisdom of county wide destruction of these early sources. The backward cold spring weather this year is doubtless the cause of its later appearance.

It will perhaps be remembered that in an earlier report (PDR 23: 205, July 1), a forecast of much reduced losses from mildew was made on the basis of the very late appearance of the fungus on top sets in 1939. This forecast did not contemplate an abnormally dry season, of course, but heavy dews appear to be sufficient for ordinary secondary spread. (July 24).

(New York State College of Agriculture, Departments of Entomology and Plant Pathology, Weekly News Letter for dates indicated).

SOME REPORTS ON DISEASES OF CUCURBITS

CUCURBIT MOSAIC AND BITTER FLAVOR: The question has been raised whether cucumbers, melons, and squashes when sprayed or dusted absorb enough of the chemical material to make them bitter.

This bitterness of flavor among the cucurbits has received much attention at various times in the past, but no complete explanation has ever been offered.

It is known that melons and cucumbers affected with mosaic may be extremely bitter to the taste. Since mosaic has seldom been as prevalent as it is this season, it is probable that this question of unpleasant flavor may arise repeatedly.

Other causes for bitterness are stunting of the plants because of unfavorable weather or soil condition, or the lack of some element in nutrition. So far as is known, sprays or dusts are never responsible for the unpalatableness of the fruit. (Charles Chupp, Weekly News Letter, July 24).

DISEASES OF CUCURBITS IN NEW YORK: In Monroe County cucumber mosaic is quite general and bacterial wilt [Bacillus tracheiphilus] is more abundant than usual. Cucumbers are just nicely started but it looks as though these two diseases might really cause some loss this year. Melons are showing more mosaic and bacterial wilt this year. There is also considerable leaf scorch, apparently due to the sun and dry winds. (Ralph G. Palmer, July 24).

Bacterial wilt of squash is causing rather heavy losses throughout Nassau County. (Orson S. Cannon, July 17).

SEVERE OCCURRENCE OF DOWNY MILDEW IN SOUTH GEORGIA: Owing to the unusual humid conditions existing at the time, conditions were favorable for a heavy infestation of downy mildew (Peronoplasmopara cubensis) [Pseudoperonospora] in the pickling cucumber crop and in the cantaloup and melon crop in this area. Severe losses were sustained, especially in the South Georgia pickle crop. (Huey I. Borders, Extension Plant Pathologist, July 21).

TOBACCO DISEASES IN MASSACHUSETTS

O. C. Boyd

Owing to the late spring, tobacco beds could not be prepared and seeded until considerably later than in the average year. On the whole, the stand of plants was poorer and growth more irregular than in most seasons, particularly in the southern part of the Connecticut Valley. It seemed that growers generally, perhaps because of the backward season, watered the beds oftener and ventilated them less than usual, and thus brought on more damping-off and bed-rot than are experienced in most seasons. The early season damping-off of the very young seedlings was not nearly so widespread and serious as the so-called bed-rot that developed about the time plant pulling began. Advance notice of bed-rot was given by the wilting of slightly undersized plants in scattered spots (up to 2 to 3 feet in diameter, but usually less than 1 foot) in the bed on bright days when the sashes were off. Such plants showed some or all of the roots completely or partly decayed. In a few of the more advanced plants, the stem at and above the ground line showed surface infection. If the beds were kept closed, damp and warm for a few days, the affected plants went down rapidly with a wet rot, the infection working up the stem to the leaves. It was found that this wet-rot or bed-rot condition could be prevented and the affected plants would recover if the diseased beds were ventilated freely, were watered sparingly and in the early forenoon, and the wilted spots thoroughly soaked with Bordeaux or dusted with copper-lime dust.

No such cases of either early-season damping-off or bed-rot later on were observed where the beds were sprayed or dusted regularly as recommended for wildfire control. The worst case observed involved a bed that was steam-sterilized last fall, but disc-harrowed this spring with a team, and thus probably heavily contaminated with soil organisms.

Wildfire [Bacterium tabacum] was reported only twice this year in the beds, both cases being observed by County Agent Locke in Agawam. The first infection was reported to him around May 20, about 2 weeks before the first pulling of plants. It represented a heavy infection of the oldest of 3 beds located very near a tobacco barn in which a diseased crop was cured last year. By May 26 it had spread slightly to the adjacent younger beds. On June 14, following heavy spray applications of Bordeaux, with increased ventilation and a letup in watering, even the worst bed had almost completely recovered. It was difficult to find a single plant with active infection. However, typical wildfire spots were observed on the older leaves of plants of the first setting in the field. The second report of wildfire, in the same town, came during the first week of June, and represented a very light infection in one bed.

Angular leaf-spot [B. angulatum] was not so prominent this year in the beds generally as was expected following its rather wide distribution and severity last year. It was first observed on May 25 in a bed in North Hadley about 10 days before time for the first pulling. Spraying twice a week with Bordeaux, however, appeared to keep it thoroughly suppressed to the end of the bed season. Not until toward the end of the transplanting season, around June 20, did angular leaf-spot become noticeable in the beds generally. At that time, it could be observed in at least half of the beds examined, although not a single heavy infection was observed anywhere. There was no difficulty in finding it in the fields in Hampshire and Franklin Counties on July 6, and it was distinctly most conspicuous in the latest plantings. It is not surprising to find considerable infection this year, for very few growers, particularly growers of Havana seed tobacco, sprayed or dusted their beds as recommended at the outset of the bed season.

Downy mildew [Peronospora nicotianae] showed up only sparingly this year even in the old, unsterilized beds. Furthermore, up until a majority of the fields were set, there was little secondary spread to nearby or distant beds. It was first observed in a bed in Easthampton on May 22 as a small but conspicuous primary infection spot, with secondary infection just beginning to show in the same bed and in an adjacent bed. Within a few days, additional scattered cases of apparently the same age were observed in all three of the Valley counties. In each instance, they occurred in old beds that had not been sterilized, and in most instances, the growers reported having seen the disease toward the end of the 1938 bed season.

Up to the middle of June, in spite of the many beds visited, only two instances were observed that represented what was considered strictly secondary infections where the spores had blown in from some distant bed. However, by the end of the field-setting season, mostly while the later fields were being restocked, downy mildew appeared in many of the beds, including those that had been treated earlier with Bordeaux, benzol, or paradichlorobenzene. In a few instances, growers reported that their beds were severely infected during or following restocking.

A survey with County Agent Leland on July 6 in Hampshire County, of fields and the few beds that remained or that were just recently harrowed or plowed under, revealed downy mildew in 5 out of 6 beds examined. In each instance where a pronounced infection existed during or after the restocking season, there occurred light to moderately heavy leaf spotting in the fields around the beds. In most instances, the extent of spotting of the field plants gradually diminished with increased distance from the old beds, and was practically nil at 100 yards. However, in one case where several large beds became infected during the restocking season, and remained intact with prominent infection until July 6, downy mildew had spread to surrounding open and

shaded fields up to a distance of about a quarter of a mile in one direction. Furthermore, there was evidence of spread of the disease on some of the plants under tents; and, in those fields, many of the leaf-spots showed fresh sporulation. On July 11, a more recent and still heavier crop of downy mildew spots was just beginning to show up on leaves about two-thirds way up the plant. Some of the older spots produced spores the preceding night.

Mosaic [virus] is just now showing up prominently in the fields, mostly on restocks in the earliest settings. On July 6, a single heavily infected plant was observed in a bed in Hadley, the only instance of plant-bed infection I have seen this year.

Summary: The tobacco bed season this year, together with the field season to date, was not very favorable generally for the development of such diseases as wildfire, angular leaf-spot, and downy mildew. Nevertheless, it was surprising to observe to what extent downy mildew did develop in several beds and fields in spite of the prevailing dry weather. Furthermore, angular leaf-spot at present has a rather widespread distribution, although not very conspicuous anywhere, and its behavior from now on will depend entirely upon the weather. The amount of damage from bed-rot was determined largely by the manner of management of the beds up to and during the pulling season. While soil sterilization is very important, yet the avoidance of recontaminating the beds during their preparation is still more important; and then the matter of spraying or dusting regularly, together with the careful regulation of watering and ventilation, is equally essential in the prevention of damping-off or bed-rot.

(Massachusetts State College Crop Disease Notes, July 11).

THE DISEASE SITUATION IN MASSACHUSETTS

O. C. Boyd

Most of the diseases of gardens, farm crops and ornamentals have been less damaging so far this season than in the average year, and much less prevalent than last year. This situation exists in spite of the overwintering of an abundance of disease material last winter, and it can be attributed to the scarcity of prolonged rainy periods, during May in particular and also during June. In fact, this season is noted for the few rains in May, only three with a total precipitation of 2.15 inches. Those rains fell on May 9, 22-23, and 28, and only the second one was a general infection period over the entire State. Then, June brought several heavy showers or light rains, only two of which proved to be general infection periods, those on June 13-14 and 29-30. Most of the total precipitation of 3.21 inches for June in Amherst fell on June 1, 8, 13-14, 17, 25, and 29-30. The normal precipitation for June is 3.51 inches.

As a result of the scarcity of infection weather, most fungous and bacterial diseases of the foliage, stems and fruits of plants are noticeably suppressed. On the other hand, virus diseases, which do not depend upon wet weather for existence and increase, and the various root and stem-rot diseases caused by soil-borne parasites, are about as widespread and injurious as usual. The following sections describe the disease situations for the various crops in the State. (See also reports on potato, tobacco, and onion diseases, pages 226, 229, 232).

Fruits

Apples: The rain of May 9 during the pre-pink bud stage of apples, released the first wave of ascospores of the scab fungus [Venturia inaequalis]. That rain, however, was of short duration in most parts of the State, and it caused light-to-heavy infections mostly only in the Connecticut Valley area. The rainy period of May 22-23, on the other hand, was general over the State and it released at least half of the scab spore load in most orchards. Furthermore, it came during bloom following 3 days of warm weather with rapid tree growth, and it arrived variously from 1 to 9 days after the pink spray was applied. Numerous orchard visits later on revealed that where no longer a period than 2 or 3 days elapsed between the time of the pink spray and the beginning of the wetting period, scab infection occurred on the new leaves of the terminal shoots and the spurs. The number of days during that interval appeared to be less important than the rapidity of vegetative growth, in determining the amount of infection that occurred during the infection period. Younger, thriftier trees that were actively pushing out new growth during early bloom contracted heavier scab infections, with only 2 or 3 days interval between pink spray and the rainy period, than older, low-vigor trees that were growing very slowly but which experienced intervals of 7 to 9 days between the pink spray and the start of the wetting period. Otherwise, the amount of infection was more or less proportional to the length of the period that elapsed between the pink spray and the rain.

Of all the scab-susceptible varieties that were exposed to that blossom-period infection, the Baldwin for some unknown reason contracted the least amount of scab--in fact, only very light infections as compared with those on McIntosh, Fall Pippin and Delicious. Perhaps its new shoot elongation was notably slow during that particular period of tree development.

Most of the growers over the State who experienced appreciable apple scab infections during the blossom period or subsequently, have already eradicated the leaf spots with lime-sulfur. Last year's experience showed the error of allowing scab to persist on the foliage throughout the latter part of the cover-spray season: The wet weather of late August and during September caused terrific amounts of late season fruit infections, which appeared later on in storage.

Both cedar rust [Gymnosporangium] and black rot (frog-eye) leaf spot [Physalospora obtusa] got off to a late start, the rain of May 22-23 being the first infection period for them. Aside from being later than usual, apple rust and hawthorne rust are also somewhat less conspicuous than usual on the foliage and fruit of apples, while the quince rust appears to be considerably less prevalent than in most seasons on both the apple and the quince [G. juniperi-virginianae, G. globosum, G. clavipes respectively].

Fire blight [Bacillus amylovorus] was reported from Middlesex County (specimen mailed in for diagnosis) on June 14 on pear, and started to appear as spur blight and twig blight in apple orchards in Amherst around June 20. The only cases of any consequence in this town occur on Fall Pippin trees with limb cankers of long standing. Other varieties show little or none--considerably less than usual at this time of year.

Cold Injury: Probably in no past season has there been more dwarfing and crimping of leaves than occurred this spring in many parts of the State. This leaf injury no doubt resulted from the low temperatures on May 14, 16, and 17, which were 32°, 32°, and 33°F, respectively, at Amherst. In other sections, and in certain parts of the orchards, the temperature descended considerably lower; and it was only slightly higher than those cited on May 13, 15, and 19. This cold period came when a majority of the orchards were in pink bud to early bloom stages, and it reduced the set of fruit noticeably in many orchards and caused fruit russett bands, in addition to injuring the youngest leaves.

Peaches: Peach scab and brown rot [Cladosporium carpophilum and Sclerotinia fructicola] have not been reported yet and only a trace of bacterial leaf spot [Bacterium pruni] is present. The symptoms of the X disease began to appear around the third week of June on both the peach and wild cherries. (See also correction, page 249).

Plums; Cherries: The fungous shot-hole diseases [Coccomyces prunophorae, C. hiemalis] and brown rot are less troublesome to date than in most past seasons. Black knot [Dibotryon morbosum] of plums is about normal; and plum pockets [Taphrina sp.] is notably prevalent on Cape Cod and Martha's Vineyard, according to W. H. Thies and B. Tomlinson who submitted specimens around June 13.

Grape: Black-rot [Guignardia bidwellii] is the only disease observed so far, and it is not nearly so widespread or severe as in the wetter past seasons.

Strawberries: The Botrytis gray mold rot was noticeably less damaging this year both on Cape Cod and in other sections than during the past two wet seasons. The same is true for the common leaf spot disease (Mycosphaerella [fragariae]) that ordinarily is injurious to most varieties other than Premier. However, more instances of the non-parasitic yellows disease [leaf variegation] were observed on the Cape and elsewhere this year than for several past seasons. It was confined to Premier.

The most outstanding feature in the strawberry situation this year was the increase in the prevalence and severity of the spring dwarf or crimps disease [Aphelenchoides fragariae] over those of past seasons. Symptoms of this nematode disease were beginning to show clearly by April 25, not long after plant growth began, and nematodes were already numerous in the diseased buds. It was apparent then, and during the observations on April 28, that considerable loss was in store for the growers. On May 11, when the injury and symptoms were at their height, a survey was made by County Agent Tomlinson, three representatives of the U. S. Department of Agriculture, and myself, of several farms in the town of Falmouth. Most of the beds showed the disease, the estimated percentage of plants affected varying from a trace to 80 percent and the estimated losses from a trace to at least 60 percent. Catskill appeared to be most severely damaged, with Howard 17 ranking second. Dorsett appeared to withstand the disease rather well, but showed more winter injury than other varieties.

Observations during the past few years have indicated more and more that the source of this nematode disease is much more likely to be infested plants from southern nurseries, those in Maryland in particular, than a perennial carry-over of the nematode from one crop to the next in the Cape Cod fields. As a result of this belief, the two strawberry cooperative associations in Falmouth obtained all of their plants this spring from nurseries in Michigan. Most of the independent growers used plants from southern nurseries as usual. County Agent Tomlinson reported on May 18 that one of his growers who had set out 13,000 plants from a nursery in Maryland suspected dwarf in his new bed. The agent found that "...a high percentage of infestation was showing up," whereas the disease ordinarily is not at all conspicuous in the new bed. Hence, it is feared that this will be a heavily diseased planting next spring.

Raspberries: Winter injury to the canes was the outstanding trouble with raspberry plantations this spring and summer. Spring infections of anthracnose [Elsinoe veneta] and spur blight [Didymella applanata] were fewer and lighter generally than in most seasons. The virus diseases, the mosaics and leaf curl, on the other hand, are as damaging as usual, at least in the older, susceptible varieties, as is also crown gall [Bacterium tumefaciens] in all varieties.

Vegetables

Compared with their prominence at this time last year and their prevalence in the average season, the following diseases are very scarce this year and apparently totally absent on many farms: Celery early blight and late blight; Macrosporium and Cercospora leaf blights of carrots; anthracnose of beans; scab and anthracnose of the cucurbits; early blight of tomato and eggplant; cabbage black-rot [Cercospora apii and Septoria spp; M. carotae and C. apii carotae; Colletotrichum lindemuthianum; Cladosporium cucumerinum and Colletotrichum lagenarium; Alternaria solani; Bacterium campestre].

Diseases of vegetables that are about as prevalent as usual include bacterial blight of beans [Bacterium spp.], root-rot diseases of beans and squash (Fusarium), and bacterial wilt of the cucurbits [Bacillus tracheiphilus]. Cucumber wilt was first observed this year on June 18 in Amherst, and bacterial blight of beans on June 12 in South Deerfield.

Ornamentals

Most early season diseases of flowers and ornamental shrubs and trees have been unimportant this year, another manifestation of the dry season. Diseases that were observed, but which caused less damage than they commonly do, are hollyhock rust [Puccinia malvacearum], snapdragon rust [P. antirrhini], delphinium bacterial leaf-spot [Bacterium delphinii] rose black spot [Diplocarpon rosae], powdery mildew of roses and other plants, botrytis blights of tulip and peony [B. tulipae, B. paeoniae], Gnomonia [ulmea] leaf-spot of elm. Anthracnose of sycamore, oaks, lilac, and maples have not been observed at all. However, a great deal of bacterial leaf and twig blight [B. syringae] of lilacs occurred in the eastern part of the State, as well as a bacterial twig and branch blight (probably fireblight) of Philadelphus generally.

(Maccachusetts State College Crop Disease Notes, July 11).

INCIDENCE OF FRUIT DISEASES IN IDAHO IN 1937 AND 1938

Earle C. Blodgett

I - 1937

The following list has been compiled from the records of inquiries and from field observations on the occurrence and prevalence of these diseases in Idaho during 1937. Most of the notes were made during several field trips: June 15 to 27, June 30 to July 1, August 21 to 24, August 30 to September 16, and others. This report follows a similar one made for 1936.

Parasitic Diseases

Coryneum blight of stone fruits (Coryneum beijerinckii): The disease was very severe on peach fruit at Moscow (Sept.). It was not noted in southern Idaho, where the crop was very light this year.

On sweet cherry very extensive leaf spotting and fruit rotting was recorded in orchards at Lewiston. Very little fruit was packed for shipment, or the injury by Coryneum would likely have been serious. Isolations were made from Royal Ann and Bing (Lambert also infected). This is the first record of damage to cherries in Idaho. Leaf spotting was severe near Moscow (June-Oct.).

On apricot, severe infection with Coryneum blight was noted at Myrtle and near Moscow. Fruit infection was very abundant (May-Sept.).

Infection was again severe in thickets of wild cherry, Prunus emarginata, at Myrtle, causing cankering and leaf spotting (May-Sept.).

Powdery mildews: On sour cherry, powdery mildew (Podosphaera spp.) was not important in orchards observed this year.

Severe infection of strawberry plants with Sphaerotheca humuli was noted at Moscow (Sept.).

Powdery mildew (Podosphaera spp.) was severe but not general on pear stock in a nursery at Emmett (Sept.).

Fireblight (Erwinia amylovora) [Bacillus amylovorus]: This disease was less severe on pears in 1937 but established cankers continued to increase and many trees died (June-Sept.). On apple it caused less injury than last year. Scattered infections were observed in southern Idaho and at Moscow (June).

Other parasitic diseases: Crown gall of brambles (Phytomonas tumefaciens) [Bacterium] caused severe injury to black caps in a planting in Jerome, and was also noted on blackberries at Moscow (June-Sept.).

Perennial canker of apple (Gloeosporium perennans). Several orchards at Coeur d'Alene showed serious damage to trees and considerable fruit rot in storage, Jonathan principally (June-Dec.).

Peach leaf curl (Taphrina deformans) was serious on trees at Myrtle (May-June).

Currant anthracnose (Pseudopeziza ribis). Severe infection was noted on red currants at Coeur d'Alene (Aug.).

Spur blight of raspberry (Mycosphaerella rubina). Serious damage was recorded in a planting near New Meadows (June-Sept.).

Strawberry leaf spot (Mycosphaerella fragariae). The record of "leaf spotting" contained in last year's report is now considered authentic for leaf spot. Symptoms in 1937 were typical and a much wider distribution was noted (June-Sept.).

Strawberry leaf scorch (Diplocarpon earliana Wolf). Fairly typical symptoms were observed but the diagnosis is not certain. The disease was common in fields of northern Idaho (July-Aug.).

Blue mold rot (Penicillium expansum) was common on apple and pear (storage season).

Non-Parasitic Diseases and Injuries

Winter injury. Peach blossom buds at Lewiston and in southern Idaho were nearly all winter killed. Certain isolated orchards produced fair to good crops. Rather severe injury was noted on brambles also (May-June).

Black end of pear caused considerable injury on certain trees near Wilder (Sept.).

Drought spot or gum spot of prunes caused more severe injury than last year. In many orchards culling because of this factor was important. As high as 40 to 50 percent of the fruit was affected even on vigorous trees (Sept.).

Cracking of sweet cherries. Injury was severe again this year, resulting in nearly a total loss of cherries for shipment from the Lewiston area (June).

Lime-induced chlorosis. This trouble was more severe and wider in distribution than usual. Serious damage was noted on grapes, brambles, peaches, pears, cherries, apples, prunes, currants, and strawberries (June-Sept.).

Jonathan spot was general and occasionally severe.

June yellows of strawberry. Several cases of what is believed to be June yellows, or Blakemore yellows, were noted on strawberries at Coeur d'Alene and Hagerman. Yellowed plants did not recover when removed to plots at Moscow (June-Aug.).

Drought spot and corky core of apples. A very serious condition was noted in two orchards at Coeur d'Alene. Twenty Ounce Pippin, Delicious and Rome Beauty were affected with drought spot, and McIntosh with corky core (June-Sept.).

Sun scald was recorded on currant and gooseberry fruit grown in Franklin County (July).

Virus Diseases

Raspberry mosaic (types not separated) was found in practically every planting examined. Infection varied from a trace to 100 percent, and in some cases damage was severe. Mosaic-like symptoms were recorded on Mammoth blackberry, red, yellow, purple, and black raspberries, dewberry, and Boysenberry (June-Sept.).

Cherry mottle leaf is considered more important than has been recognized. Diseased trees were noted at Glenns Ferry, Emmett, and Lewiston. Mild symptoms are quite common. This disease is now recorded as a virus disease since budded trees become severely diseased even if the buds do not live (June-Sept.).

Miscellaneous Diseases - Causes Undetermined

Strawberry: (a) Further observation amd study indicate that the unknown degeneration trouble may be due to cyclamen mite injury. Crinkle may be a factor also. The damage last year was more severe than previously (June-Sept.). (b) Yellowing and death of strawberry plants (also bramble and fruit trees) was recorded in an isolated place above Salmon. The trouble appeared to be lime-induced chlorosis, but preliminary tests indicated that this is not the probable explanation. Further work is intended (July-Sept.).

Italian Prune: (a) Leaf curl. These symptoms were less pronounced this year (Sept.). (b) Leaf spotting. In general there was little leaf spotting but mild cases were widely scattered. In a few instances the injury was so severe, however, that some defoliation occurred. So far there is no more known about the cause of the spotting. A similar trouble was noted on young trees on old orchard land at Emmett. (c) In an orchard at Parma a peculiar leafless condition was noted. A fairly heavy set of fruit was found on trees that were approximately 30 percent foliated. It was apparent that the leaf buds were dead. The most likely explanation under the known conditions is that winter temperatures killed the leaf buds but not the flower buds, although this seems like an unusual condition. Fruit drop continued on these trees from June until harvest with only a light crop maturing.

Apricot: Last year a peculiar leaf condition was noted on apricot trees at Emmett and at Lewiston. Most of the trees at Lewiston were replaced and the few left appeared to be fairly normal. The trees at Emmett, however, showed severe leaf injury, but growth was fair. Two of these trees planted at Moscow showed no symptoms and grew well.

Currant and Gooseberry: The leaf scorch symptoms noted last year were again common in the same patch.

Peach: (a) The obscure peach trouble at Weiser appeared to be slightly less severe this year but spread continued. In one orchard (where a good crop was anticipated) the fruit, as usual, almost matured and then dropped. Roots examined appeared healthy. Attempts to transmit the disease have apparently not been successful, but symptoms may show later. Additional work is in progress.

Cherry: In many plantings of stone fruits, particularly of cherries (also prunes, plums, peaches) a shot-hole condition is quite common. These holes appear shortly after unfolding of the leaf amd result from death of portions of tissue which turn light in color and dry out. On sour cherries this condition is associated with poor fruiting, willowy type of growth, and a sort of bitter pit of the fruit. On sweet cherries, it is common on mottle-leaf trees, on seedlings and "certain trees." Attempts to isolate an organism have been unsuccessful. There is so much of this type of trouble that it is apparently serious, and attempts will be made to determine its significance.

II - 1938

This list has been compiled from the records of inquiries and of field observations on the occurrence and prevalence of these diseases during 1938. Most of the notes were made during the field trips of June 14-26, August 4-13, September 1-14, October 4-11. Those trips were not strictly of a survey nature, and the following records were taken incidental to other work. Thus, the list is complete only in that it includes all diseases observed during 1938. The report is similar to those for 1936, 1937.

Parasitic Diseases

Coryneum blight of stone fruits and an undetermined fruit spotting of apricot: Coryneum blight was widespread on peach and in certain orchards caused serious twig cankering and fruit spotting. It was rare in well cared for orchards in southern Idaho (May-Sept.).

On sweet cherry, it was less common this year in Lewiston, but there were locally moderate leaf and fruit infections (June-Sept.).

On apricot, fruit and leaf spotting with Coryneum blight was mild but widespread in southern Idaho. It was very severe in northern sections.

This year there was increased interest in what apparently is physiological spotting of apricot fruit. In certain cases, even where spraying was said to be well done, there was very severe spotting which appeared similar to Coryneum blight lesions. Repeated attempts at isolation were unsuccessful. The spotting seemed to be confined largely to the sunny or exposed sides of fruit and sometimes was sufficient to reduce the grade (May-July).

Extensive leaf spotting and twig infection due to C. beijerinckii was noted on wild cherry trees, Prunus emarginata, at Myrtle (May-Sept.).

Powdery mildew: Moderately severe infections of Podosphaera sp. were noted in sour cherry orchards near Weiser. More damage occurred than in 1937 (June).

Severe injury to leaves, twigs, fruit was seen in a peach orchard near Caldwell (Sept.).

On apple, infection was noted on seedlings at Moscow (May) and a general outbreak was seen in a large orchard at Mesa (June). Damage was not severe.

One case of severe infection of grape with Uncinula necator was noted in a small planting at Boise (Oct.).

On gooseberry, very severe infection with Spaerotheca mors-uvae was recorded on check bushes at Genesee. Bushes sprayed twice with lime sulfur and dry lime sulfur were completely protected (June).

A small patch of Latham raspberries near Moscow was injured by severe infection with S. humuli (June-July).

Heavy infection of S. humuli was seen in a small strawberry planting at Moscow (June).

Fire blight, Erwinia amylovora [Bacillus amylovorus]: Blight of pear this year was the most severe ever recorded in the Huston area in southern Idaho. Young orchards were killed and many older trees were almost ruined. Bartlett, Bosc, and Anjou were all severely attacked (June-Oct.). On apple, the disease was more prevalent than usual and became serious in some areas. Jonathan blossom and spur blight was the most common type of injury (June-Oct.). Extensive damage was noted on the few quince trees observed.

Other parasitic diseases: Crown galls (Phytomonas tumefaciens) [Bacterium] were noted on raspberry plants at Moscow (May).

Perennial canker of apple. Several orchards at Coeur d'Alene showed serious cankering and some fruit rot. Seedling and Rome Beauty fruit in storage at Moscow were heavily infected by the rot organism (Jan.-May). One infected Jonathan fruit was from Lewiston, where the disease is uncommon.

Peach leaf curl. Extensive damage was noted on unsprayed trees at Harrison, Myrtle, Moscow, and Genesee. Fruit infection was severe in one orchard. It has not been recorded in southern Idaho (May-Aug.).

Leaf spot of blackberry (organism tentatively identified as Septoria spp.). Severe leaf spotting was noted on Lawton at Moscow (July-Sept.).

Anthracnose (Pseudopeziza ribis) on wild gooseberry. Collections were made near Pollock (June).

Spur blight of raspberry (Mycosphaerella rubina). Extensive injury was noted in a planting of Improved Alten red raspberry near Meadows (April-Sept.).

Strawberry leaf spot, in general, was less serious than last year. On one planting, however, near Grangeville the disease was extremely severe (June-Nov.).

Strawberry leaf scorch (Diplocarpon earliana). Symptoms were fairly typical but the diagnosis is still not verified. The disease was less common this year (June-Aug.).

Blue mold rot (Penicillium expansum) was common on apples and pears (Storage season).

Rhizopus rot, Rhizopus nigricans, was very common on fallen fruit in peach orchards in southern Idaho. It was hardly noted previously, but some damage to packed fruit was recorded this year (Sept.-Oct.).

Rust of blackberry (?). One plant of nursery stock, season 1937, was found infected at Parma. The fungus has not been identified.

Non-Parasitic Diseases and Injuries

Winter injury. Damage was very slight. Some mechanical bud and cane injury by snow was noted on raspberry (July).

Black end of pear was less common this year. Some injury was noted near Wilder (Sept.).

Drought spot or gum spot of prunes. Very little injury was noted this year in southern Idaho. Fruit on weak trees often showed damage and in northern Idaho gum spotting was severe on all the few remaining trees observed. Evidence points toward increased severity of this disease under drought conditions (Aug.-Sept.).

Cracking of sweet cherries. Rains about June 20 caused extreme damage to cherries in the Lewiston section (June-July).

Lime-induced chlorosis. This disease has been increasing in severity during the last few years. It is common on all orchard fruits. One grower near Wilder sprayed Italian prune trees early in June with 1 percent ferrous sulphate and severe leaf spotting, defoliation, and fruit fall resulted. Some improvement in color of foliage left was noted late in the season (June-Oct.).

Hail injury. One case of severe injury to apples near Craigmont was noted (Sept.).

Frost injury. Late spring frosts (early June) did considerable and general damage to small fruits and to apples in particular (June).

June yellows [leaf variegation] of strawberry. Additional cases of what is considered to be this disease were noted this year (June-Sept.).

Drought spot and corky core of apple. Considerable injury was again noted in orchards at Coeur d'Alene. Recorded at St. Maries also (Aug.-Sept.).

Virus Diseases

Raspberry mosaic (types not separated). Mosaic accounts for marked reduction in yield of raspberry plantings generally in Idaho (June-July).

Cherry mottle leaf seems to be widely distributed in Idaho. Variation in symptoms is common and as yet the full extent of injury is unknown. In one orchard near Council, mottle leaf trees are localized near a wild cherry thicket.

Miscellaneous Diseases - Causes Undetermined

Strawberry: Further evidence indicates that cyclamen mite injury is largely responsible for the degeneration troubles noted before. A very high percentage of berries showed malformation on plants relatively free of mites, however, and the cause of the cat-facing of berries is not known (June-Oct.).

Italian prune: (a) Leaf curl; there was less evidence of this trouble during the present season. (b) Leaf spotting; in general this disease was less severe this year, although scattered cases of very severe injury were noted.

Apricot: The "leaf blotch" condition noted previously was less prevalent this year. Mild cases were noted, however.

Peach: (a) The obscure peach troubles discussed in earlier reports continue to cause considerable concern. As yet, transmission studies are not successful. In many respects the disease appears similar to the X-disease.

(b) This year several definite cases of severe leaf spotting and defoliation occurred. Often the affected trees produced small, poor quality fruit, and losses were great. At Lewiston, Red Bird cling trees were affected, and at Wilder the Hale trees showed more extensive damage than Elberta. The injury is widespread and severe, but as yet no conclusive data are available regarding cause.

(c) One peach tree at Weiser and one at Emmett showed a peculiar type of injury on the fruit. There were corky, raised bumps, tan in color, on the surface. The injury was evident as early as June and persisted throughout the season.

Cherry: In the 1937 report, attention was called to a shot-hole condition on stone fruits, sour cherries in particular. No data are available, but there is evidence that this trouble may be similar to the disease recently called "pink-fruit" by Reeves, et al. (Plant Disease Reporter 23: 10. 1939). The situation appeared to be more serious than during 1937.

SOME IMPORTANT DISEASES IN OKLAHOMA

K. Starr Chester

Unusual Severity of Some Mid-Season Diseases: As previously reported, a rather dry spring resulted in relatively small amounts of the early-season diseases in Oklahoma, such as the cereal rusts. June, however, was unusually moist, with the consequence that we are now receiving many reports of mid-season diseases which are more severe than usual. Among these may be mentioned brown spot of corn (Physoderma zeae-maydis) and bacterial wilt of corn (Phytomonas stewarti), in each case causing serious enough damage to arouse concern and requests for control measures on the part of growers. In the case of bacterial wilt, the disease was found attacking field corn in Holdenville to a destructive extent, which is unusual but not unprecedented in Oklahoma. Rust of alfalfa (Uromyces striatus) and rust of cowpeas (Uromyces vignae) have both been severe in individual fields. Alfalfa rust is generally present in most of our fields but only rarely causes the defoliation frequently observed this year. One field of cowpeas at Blanchard was damaged to an estimated 25 percent by rust. Likewise, the downy mildews and leaf spots, particularly the leaf spot of elm (Gnomonia ulmea) have been unusually prevalent.

Footrots of Wheat: A survey trip shortly before the wheat harvest in the Oklahoma Panhandle showed footrots of wheat to be exceedingly prevalent throughout the area from Alva to Boise City. This is correlated with excessive rainfall in March for that area. Many of the better fields showed large rootrot spots sometimes involving 30 percent of the land or more, and fields that were total failures from rootrot were not uncommon. Collections made at that time have been cultured and used in laboratory infection experiments and these indicate that the most important organisms involved are, in order of prevalence, species of Helminthosporium, Fusarium, and Pythium.

Rootrot of Sorghum Caused by Various Fungi: At the request of Mr. W. M. Osborn of the Federal Station at Lawton, young sorghum fields were examined and here also a great deal of rootrot was observed, some of the fields being uniformly and evenly stunted and containing many dead and dying seedlings. The roots were cultured and tested by laboratory methods which indicated that the condition was due principally to species of Fusarium, Helminthosporium, Sclerotium bataticola, and Pythium (not P. arrhenomanes), listed in order of prevalence and virulence.

It is particularly interesting to note that Sclerotium bataticola is again appearing as an important element of the sorghum rootrot problem. In the many cultures made during the past two years by various members of this department Sclerotium bataticola has been regularly isolated from diseased sorghum roots collected in the central and southern parts of Oklahoma. The organism appears to be capable of

producing rootrot in sterile soil cultures as well as in agar cultures. This is in accordance with the findings of Dunlap in Texas. It appears to indicate that there are two important causes of rootrots in seedling and mature sorghum, the Pythium arrhenomanes prevalent in Kansas and the Oklahoma Panhandle, and Sclerotium bataticola, which appears to be the most important agent of this trouble in central Oklahoma and Texas. Repeated culturing has not demonstrated P. arrhenomanes in any of the central Oklahoma collections, although the techniques used are suitable for demonstrating Pythium species.

Increasing Importance of Cowpea Mosaic: With the rapid extension of the use of cowpeas in soil improvement programs, cowpea mosaic is rapidly becoming a major factor in Oklahoma production. The disease, which was first observed to serious extent in Stillwater plantings in 1937, is now frequently seen at various points over the State. In 1938 sixty samples from Oklahoma seedsmen failed to reveal mosaic in any case, although our tests at Stillwater indicate that the Stillwater virus is regularly transmitted in 5 percent of the seed from diseased plants. When such seed are planted the virus increases from 5 percent in the seedlings to 100 percent in the field in about a month's time. The damage in such fields is estimated at about 30 percent. Several such fields have been seen in 1939. The disease was first observed in the variety New Era at Stillwater, from which it spread to Whip-poor-will, Brabham, and other varieties. There are many points of similarity between this disease and bean mosaic, and its rapid spread at the present time suggests the necessity for efforts at producing resistant varieties. The vector of the disease is not known. It can be transmitted mechanically, although not with 100 percent regularity.

(Oklahoma Agricultural and Mechanical College, July 18).

RICE STRAW STACKS AS A SOURCE OF INFECTION WITH THE BLACK KERNEL DISEASE [1]

Alan L. Martin

In a previous communication (PDR 23: 83-84. March, 1939), the fungus Curvularia lunata was designated as the likely cause of black kernel in rice. It was also indicated that infection takes place when the rice is in the blooming stage. Recent work has shown that stacks of old rice straw may be an important source of inoculum in the field.

Preliminary investigation in the most severely infected areas had already shown that rice straw was kept from year to year as a forage for cattle. It was felt that the straw stacks might possibly be responsible for infecting succeeding crops, and cultures were made of dust blown from these stacks during the spring and summer of 1939. Petri dishes containing a sterile rice agar media were exposed for about 10 seconds to dust stirred up around these stacks. In most cases 5 plates were exposed in each location. The cultures were incubated at 35° C. for 6

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Table 1. Distribution and frequency of occurrence of fungi isolated from rice straw stacks.

Location	Variety	Black kernel previously present in field	Number of colonies of fungi most frequently isolated							
			Curvularia lunata	Penicillium	Fusarium	Helminthosporium	Trichoconis	Rhizopus	Alternaria	Others
Katy (A)	Nira	+	7	160	7	18	3	23	0	3
Katy (B)	Blue Rose	?	0	3	12	0	23	4	0	2
Katy (C)	Lady Wright	+	0	44	0	0	6	34	0	0
Katy (D)	Early Prolific	+	0	164	0	0	13	16	0	1
Eagle Lake (A)	Unknown	?	0	2	0	0	2	1	0	1
Eagle Lake (B)	"	?	0	15	0	0	0	1	0	0
Katy (E)	Lady Wright	+	2	27	10	0	2	4	0	6
Katy (C) Repeated	Lady Wright	+	6	22	5	0	1	10	5	5
Katy (F)	Lady Wright	+	2	10	0	3	2	2	2	0
Katy (G)	Fortuna	-	0	80	5	0	1	14	0	4
Katy (H)	Blue Rose	-	0	122	3	1	5	5	0	0
Eagle Lake	Rexoro	+	2	72	3	0	3	5	3	0
Katy (I)	Lady Wright	+	3	59	2	5	4	12	0	0
Amelia (A)	Unknown	?	1	300	4	0	7	1	5	10
Amelia (B)	"	?	0	70	6	5	10	0	0	0
Stowell (A)	Blue Rose	+	19	84	18	10	31	0	0	6
China (A)	Unknown	?	2	400	20	2	15	0	1	0
Amelia (C)	"	?	0	8	7	14	6	0	31	4
Stowell (B)	"	?	8	35	4	6	15	3	10	0
Stowell (C)	Blue Rose	-	1	31	4	4	3	1	5	10
Lissie (A)	Unknown	-	0	0	15	5	1	0	30	0
Futche	"	?	0	350	4	5	8	1	20	1
Lissie (B)	"	?	1	8	17	5	12	0	23	0
Katy (J)	"	+	3	3	4	1	12	3	42	20
Angleton (A)	"	-	0	43	0	0	1	1	0	43
Angleton (B)	"	-	0	6	1	0	1	1	0	3
Alvin (A)	"	-	0	10	0	0	0	0	0	6
Alvin (B)	"	-	0	13	0	0	0	0	0	48
China (B)	"	-	0	64	1	0	3	2	0	0
Fannett	"	-	0	6	0	0	2	1	0	49
East Fannett	"	-	0	7	0	0	3	4	0	1
Westberry	"	-	0	6	0	0	2	3	0	0

days and observed for fungus colonies. The more common organisms were identified from the type of colony growth, but the identification of all fungi appearing like Curvularia lunata was verified by examination under the microscope.

Table 1 shows the organisms commonly obtained from these cultures and the number of times they occurred. It is evident from this table that C. lunata colonies were more numerous in those cases where the previous crop had been infected with the black kernel disease. It seems probable that C. lunata may overwinter in the straw stacks and new infection may result from the spores being blown to the blossoming plants the next season. Dry weather and high winds during the blossoming period may increase the amount of infection.

(Texas Agricultural Experiment Station, Substation No. 4, Beaumont, Texas).

BRIEF NOTES ON PLANT DISEASES

STRAWBERRY RED STELE APPEARS IN CONNECTICUT: According to Market Growers' Journal (65: 329, July 1, 1939), "E. M. Stoddard reports that a two-acre field of berries in Branford has been ruined and that red stele [Phytophthora sp.] has been found on a smaller scale in several other places in the State."

PERITHECIA OF VENTURIA INAEQUALIS STILL ACTIVE IN NEW YORK: Ralph Heinicke's report on the scab situation is as follows: "Leaves gathered on July 17 and moistened gave an abundant shoot of spores. About 80 percent of the perithecia were either empty or contained disintegrated asci. About 20 percent still contain mature asci." (Morton Adams, Wayne County. Weekly News Letter, July 24).

VERTICILLIUM WILT OF PEACH TREES IN NEW YORK: I have noticed a number of cases of verticillium wilt in some peach orchards. (J. G. Goodrich, Niagara County. Weekly News Letter, July 24).

X-DISEASE ON WILD CHERRY IN MASSACHUSETTS - A CORRECTION: Since the report of the finding of X-disease on the rum cherry, Prunus serotina, (Reporter, July 1, page 207), I have learned that the species of Prunus involved was wrongly identified. The diseased host was really P. virginiana, the chokecherry, instead of the rum cherry as reported. (O. C. Boyd, July 24. Massachusetts State College).

BACTERIAL STALK ROT OF CORN FOUND IN KENTUCKY: A specimen of corn was received from Crittenden County which appears to have a disease identical with Rosen's bacterial stalk rot [Bacterium dissolvens]. The plant was decayed and broken over about 4 inches above the ground line and just below a node. Bacteria were abundant at the edge of the decayed area. (W. D. Valleau, July 18. Kentucky Agricultural Experiment Station).

BACTERIAL WILT OF SWEET CORN IN NEW YORK: (From Weekly News Letter for dates indicated). In Nassau County (Long Island), bacterial wilt (Phytomonas stewarti) [Aplanobacter] has not become serious in the early corn crop, in spite of the fact that some non-resistant varieties are being grown (Orson S. Cannon, July 17). Stewart's disease is very common in Orange County where susceptible varieties are grown (W. H. Ewart, July 17). Bacterial wilt has been observed in Suffolk County (Long Island), but the injury is insignificant (Walter G. Been, July 24).

NORTHEASTERN DROUGHT BECOMING SERIOUS

(Weekly Weather and Crop Bulletin for week ending July 25)

The drought that began in the Northeastern States about the first of July is now reaching serious proportions. In New York State, where the drought is most acute, damage from this cause is becoming daily more serious and widespread, with the fire-hazard increasing and streams and wells becoming low. In the New England States cool, dry weather early in the week assisted in retarding the effects of the drought, but toward the close the advent of hot weather again aggravated conditions. In this area there have been 25 days with less than one-half inch of rainfall, and shallow-rooted crops are now reported badly hurt. The effects of the dry weather are less serious in Pennsylvania and New Jersey, but in these States there is urgent need for immediate, soaking rains.

A pressing need of rain is also becoming evident in the Lake region, particularly Michigan and Wisconsin where the growth of some crops has been seriously stunted and the forest-fire hazard increased. The droughty area in the south-central Great Plains is becoming somewhat extended due to the practically rainless week and the occurrence of hot, dry winds and high temperatures. Some localities in this area reported maxima as high as 115° during the week, while the soil moisture is badly depleted in most parts.

In portions of Wyoming and Colorado irrigated crops are still doing well where there are adequate water supplies, but there are increasing reports of a water shortage for this purpose, with many canals reported dry in southeast Colorado. High temperatures and low humidities in many portions of the Pacific Coast States have caused serious forest-fire hazards and grain, brush, and timber fires were fairly extensive in northern and central California, with an estimated burned acreage of timber 30,000 and grain and brush 50,000.

In marked contrast to these droughty areas, conditions in most of the Ohio and Mississippi Valleys are quite satisfactory, with the major crops in fair to good condition and making satisfactory progress. The absence of material rainfall during the week was not seriously detrimental in the Spring Wheat and Winter Wheat Belts as it enabled harvesting and threshing operations to proceed practically uninterruptedly. In areas of the Southeast moderate to heavy rains were mostly beneficial, particularly in some areas that had been unfavorably dry and the general progress of crops in this area is satisfactory.

THIRD NATIONAL PLANT NEMATODE CONFERENCE

The National Plant Nematode Committee which organized the Second National Conference held in Atlanta in 1938 is planning another national conference to be held in connection with the next Annual Convention of the Association of Southern Agricultural Workers, in Birmingham, Alabama, February 5 - 8, 1940. One important feature of the program will be an attempt to present, in digest, as complete a picture as possible of the damage annually wrought in this country by the attacks of the root-knot nematode and other plant parasitic species. The Plant Disease Survey Office has offered to try to compile and condense with the help of the Division of Nematology of the Bureau of Plant Industry all information sent in relating to the situation in the present 1939 season.

All official collaborators of the Plant Disease Survey and others interested and willing to help are asked to collect as much factual information and as many concrete examples as possible showing the diversity of economic plants attacked, distribution within the State, current damage sustained and the effects of such damage on the success of individual farm enterprises. Although it has been suggested that perhaps no single pest now occurring in the United States is responsible for as large total annual damage to agriculture as the root-knot nematode, Heterodera marioni, concrete evidence has been difficult to get on the actual damage sustained, on the added losses due to necessary undesirable shifts in growers' practices to minimize nematode damage, and on the costs of soil sterilization or treatment of propagating material to reduce infestation. As a consequence the public generally has but little appreciation of the magnitude of this and other plant nematode problems and has given generally inadequate support to the solution of them. A generous accumulation of specific records will therefore be very useful.

Dean H. Harold Hume, Chairman of the Committee, University of Florida, Gainesville, Florida, has indicated that suggestions will be welcomed regarding program features and proposals for the consideration of the conference. Titles of brief papers for possible presentation at the conference will no doubt also be welcomed by the Committee. Dr. G. Steiner, Head of the Division of Nematology, has reported that the development of many important facts and findings relative to various plant nematodes since the 1938 conference assures the success of the next conference. It will greatly aid research workers in planning for the most effective scientific attack on the problems in this field. (Howard P. Barss, Office of Experiment Stations).

PERSIMMON WILT FOUND IN OKLAHOMA

K. Starr Chester

Persimmon wilt appears to be established in Oklahoma. Extensive infestations were found on July 16 east of Cushing and north of Stillwater in Payne County, and on July 30 in the vicinity of Non in the southern part of Hughes County. Numerous healthy groves were found in the extreme southeastern part of the State.

It is not possible at the present time to state conclusively that the disease is identical with that of Tennessee and the Southeastern States. Cultural studies on the causative organism have not been completed. The symptoms of the trouble in Oklahoma agree with those previously described for the Cephalosporium disease. The last annual ring is blackened with a stippled appearance in cross sections. The blackening may be confined to the base of the plant or may extend well out into the smaller branches. The extreme virulence of the disease, as described earlier, also applies to our observations where groves which appear to have been relatively free of the trouble prior to this year now show many dead and dying plants. Spores of the Cephalosporium type have been observed where the bark is weathered away, and cultures by Dr. W. W. Ray have yielded a pink mycelium which under our conditions does not appear to sporulate readily. A second organism is also frequently isolated.

The Oklahoma collections are of particular interest since they indicate that the infestation has reached the extreme western limit of the range of the persimmon.

(Oklahoma Agricultural and Mechanical College. July 31).